Monitoring and addressing overdiagnosis and overtreatment to reduce low-value care across all healthcare settings

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&
Associate Professor Magnolia Cardona, *Gold Coast University Hospital and Bond University, Australia*

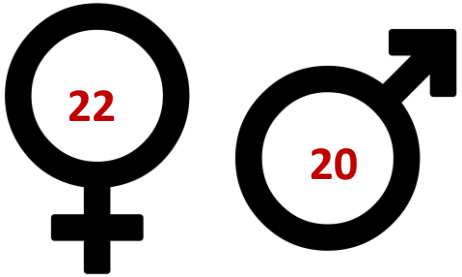
Introduction

- Two themes to this talk
  - What we have learnt from our body of research into the last year of life
  - With a focus on study designs incorporating choice

Overtreatment in the last year of life

- Research lead by A/Prof Cardona
- identifiable and potentially preventable

2017: Aus 3.7million aged 65+ years; QLD 720,000

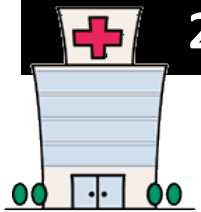


1 in 5 emergency presentations

2050: Double

1 in 7 could have been managed by a GP

AUS 85+y.o. Resuscitation: 2,650



What is overtreatment near the end of life?

- Any medical, surgical treatments or additional testing or hospitalisations that will not change management or prognosis and can potentially cause harm
- This overuse of treatments inflicts unnecessary patient suffering, creates false hope of patient survival and frustration among clinical staff, and generates unsustainable costs.

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Article

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Non-beneficial treatments in hospital at the end of life: a systematic review on extent of the problem

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What can we do to reduce it?

1. Tools for predicting people at risk of death within the year are available for free.

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Development of a tool for defining and identifying the dying patient in hospital: Criteria for Screening and Triaging to Appropriate aLternative care (CriSTAL)

Magnolia Cardona-Morrell,[1] Ken Hillman[2]

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RESEARCH PAPER

CrossMark

Predictive validity of the CriSTAL tool for short-term mortality in older people presenting at Emergency Departments: a prospective study

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Purpose

Abstract To determine the validity of the Australian clinical prediction tool Criteria for Screening and Triaging to Appropriate aLternative care (CRISTAL) based on objective clinical criteria to accurately identify risk of death within 3 months of admission among older patients.

Methods Prospective study of ≥ 65 year-olds presenting at emergency departments in five Australian (Aus) and four Danish (DK) hospitals. Logistic regression analysis was used to model factors for death prediction; Sensitivity, specificity, area under the ROC curve and calibration with bootstrapping techniques were used to describe predictive accuracy.

Results 2493 patients, with median age 78–80 years (DK–Aus). The deceased had significantly higher mean CriSTAL with Australian mean of 8.1 (95% CI 7.7–8.6 vs. 5.8 95% CI 5.6–5.9) and Danish mean 7.1 (95% CI 6.6–7.5 vs. 5.5 95% CI 5.4–5.6). The model with Fried Frailty score was optimal for the Australian cohort but prediction with the Clinical Frailty Scale (CFS) was also good (AUROC 0.825 and 0.81, respectively). Values for the Danish cohort were AUROC 0.764 with Fried and 0.794 using CFS. The most significant independent predictors of short-term death in both cohorts were advanced malignancy, frailty, male gender and advanced age. CriSTAL's accuracy was only modest for in-hospital death prediction in either setting.

Conclusions The modified CriSTAL tool (with CFS instead of Fried's frailty instrument) has good discriminant power to improve prognostic certainty of short-term mortality for ED physicians in both health systems. This shows promise in enhancing clinician's confidence in initiating earlier end-of-life discussions.

Keywords Risk assessment · Uncertainty · Prognosis · Frail · Aged · Prospective studies

BACKGROUND

The natural progression of chronic disease involves periods of apparent remission interspersed by exacerbations and, in the year leading to death, multiple hospitalisations.[1] Some indicators of poor prognosis can suggest a patient is nearing the *end of life*,[2] and have been found useful for initiating discussions with families regarding pre-emptive care planning.[1] Yet there is uncertainty of the time, frequency and duration of the next episode of decompensation as well as the ultimate prognosis causing doubts about whether to continue active management. Further, while the majority of people want to die at home, most will die in hospital.[3–8] Patients nearing the end of life are high-level users of ambulance services,[9] emergency services,[2 10] hospital wards[11] or intensive care units and many die in hospital.[12] Significant numbers of patients with cancer or other terminal illnesses are suitable for palliative care but often are readmitted to acute hospitals multiple times with lengths of stay of just under a week.[10 13 14] While there are accepted policies for de-escalating treatment in terminally ill patients,[2 15–17]

2. Timely honest conversations on non-aggressive options using **decision aids** and advance health directives.

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Review article

A systematic review of effectiveness of decision aids to assist older patients at the end of life

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ABSTRACT

Objective: To describe the range of decision aids (DAs) available to enable informed choice for older patients at the end of life and assess their effectiveness or acceptability.
Methods: Search strategy covered PubMed, Scopus, Ovid MEDLINE, EMBASE, EBM Reviews, CINAHL and PsycInfo between 1995 and 2015. The quality criteria framework endorsed by the International Patient Decision Aids Standards (IPDAS) was used to assess usefulness.
Results: Seventeen DA interventions for patients, their surrogates or health professionals were included. Half the DAs were designed for self-administration and few described use of facilitators for decision-making.
Treatment: options and associated harms and benefits, and patient preferences were most commonly included. Patient values, treatment goals, numeric disease-specific prognostic information and financial implications of decisions were generally not covered. DAs at the end of life are generally acceptable by users, and appear to increase knowledge and reduce decisional conflict but this effectiveness is mainly based on low-level evidence.
Conclusions: Continuing evaluation of DAs in routine practice to support advance care planning is worth exploring further. In particular, this would be useful for conditions such as cancer, or situations such as major surgery where prognostic data is known, or in dementia where concordance on primary goals of care between surrogates and the treating team can be improved.
Practice implications: Given the sensitivities of end-of-life, self-administered DAs are inappropriate in this context and genuine informed decision-making cannot happen while those gaps in the instruments

NZ Advance Care Planning Guide

Is choice beneficial?

- Shared decision making & decision aids increasingly important
- Patients weigh up the harms and benefits and make a decision for treatment in line with their values and beliefs
- Important to have evidence of when treatment choice is beneficial and when it may be harmful
  - Does patient choice of treatment change outcomes?
- How do we measure the effect of choice?

Randomised trials incorporating patient choice

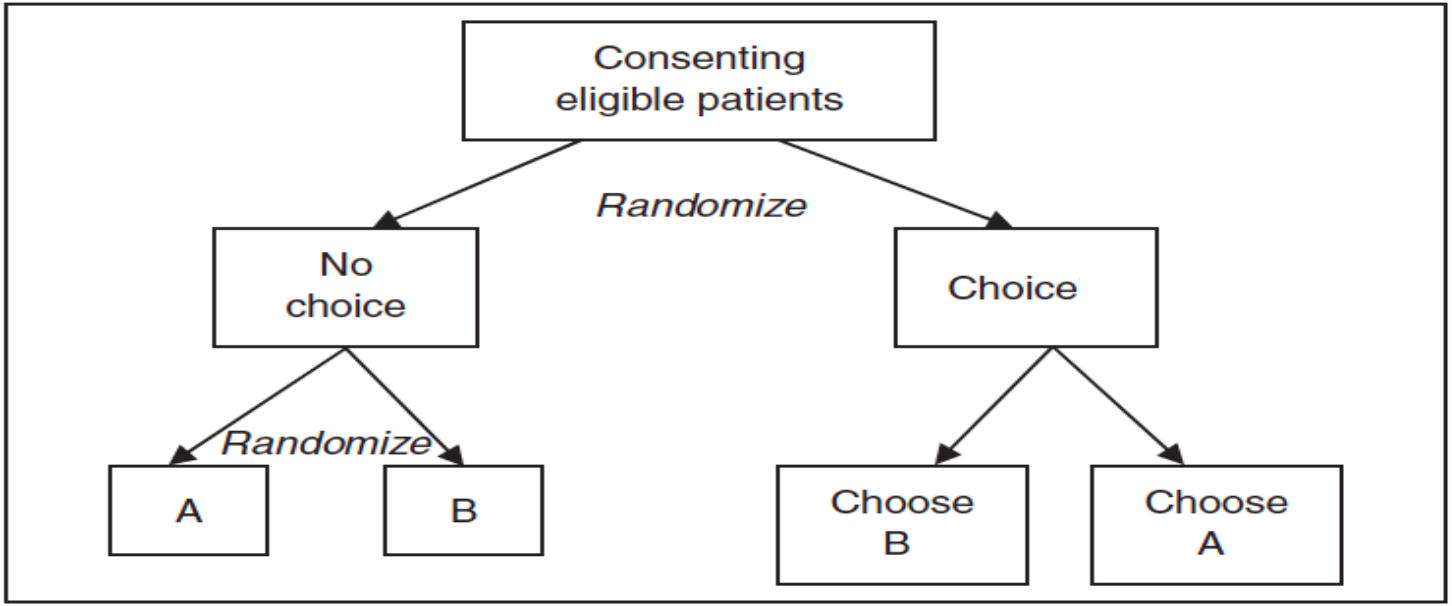
- Standard RCTs do not allow for the investigation of participant preferences for treatment
- 2-stage design with participants randomised to choice or no choice
- Analysis method developed by Rucker (1989) allows estimation of:

Treatment effect: standard randomised comparison of the A vs B

Selection effect: the comparison of people who prefer treatment A with those who prefer B

Preference effect: the comparison of people who receive their preferred treatment with those who do not (i.e. the effect of choice)

Design incorporating treatment choice



Analysis

- Uses information in the choice arm to estimate the mean outcomes for people who did or did not receive their preferred treatment
- Previous use of this design has shown large effects of preference that were not seen in the traditional analysis

McCaffery KJ, Irwig L, Turner R, et al. *BMJ*. 2010;340:b4491.
McCaffery KJ, Turner R, Macaskill P, et al. *Med Decis Making*. 2011;31:229-36.

When should I use this design?

- Addition of a choice arm (to estimate preference & selection effects) reduces power to detect the treatment effect (if the total sample size is not increased)
- The design appeals when:
  - preference is important
  - treatment effect is known to be small
- Treatments should be (nearly) equally preferred
  - This preference rate very important in determining sample size

Conclusions

- Need to identify older people at increased risk of dying sooner (e.g. CriSTAL tool)
- Informed decision making
- Evidence from two-stage RCT design that choice is beneficial
- More conversations earlier